AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-3 (canceled).

4. (previously presented): A semiconductor chip comprising:

a plurality of first elements each of which diagnoses itself; and

a second element which inputs diagnosis results from said first elements and determines whether or not there is a faulty first element in said first elements;

third elements which correspond to pins of said first element, each of which inputs said diagnosis results from same pins of said first elements, respectively, and each of which determine a minority one of said first elements based on said diagnosis results;

fourth elements which correspond to said first elements and which determine whether or not the corresponding first element fails based on outputs from said third elements; and

wherein said second element further includes a fifth element which outputs information about a faulty first element to said first elements.

5. (previously presented): The semiconductor chip as claimed in claim 4, further comprising a memory element which stores a program for diagnosing said first elements.

6. (previously presented): The semiconductor chip as claimed in claim 4, further comprising a sixth element which cannot diagnose itself.

7. (original): The semiconductor chip as claimed in claim 6, wherein said sixth element is selected from a group consisting of a main memory, a main memory controller, and a processor which controls input and output process.

8. (previously presented): The semiconductor chip as claimed in claim 4, further comprising an external input which input a diagnosis program; and

a seventh element which selects to load a diagnosis program from said memory element or said external input.

9. (original): The semiconductor chip as claimed in claim 8, further comprising a register which stores information indicating which of a diagnosis program from said memory element or said external input said seventh element selects.

10. (previously presented): The semiconductor chip as claimed in claim 4, further comprising an eighth element which selects, as a trigger, a first signal set by a user or a second signal from a semiconductor chip which controls start up.

11. (original): The semiconductor chip as claimed in claim 10, further comprising a register which stores information indicating which of said first or second signal said eighth element selects.

Claims 12-14 (canceled).

15. (currently amended): A method which is performed in a semiconductor chip including a plurality of first elements, comprising:

diagnosing said first elements each by itself; ~~and~~

discriminating each of diagnosis results into a majority group or a minority group;

determining one of said first elements whose diagnosis result is in said minority group as a faulty first element;

discriminating a minority one of said first elements based on diagnosis results input from same pins of said first elements;

determining where or not said first element fails based on the determined result determined during said discriminating step; and

~~determining whether or not there is a faulty first element in said first elements based on diagnosis results from said first elements.~~

outputting information about a faulty first element to said first elements.

16. (previously presented): The method as claimed in claim 15, further comprising: diagnosing a sixth element which cannot diagnose itself.

17. (previously presented): The method as claimed in claim 15, wherein said semiconductor chip includes a memory element which stores a diagnosis program and an external input;

further comprising:

selecting to load a diagnosis program from said memory elements or said external input.

18. (previously presented): The method as claimed in claim 15, further comprising: selecting, as a trigger, a first signal set by a user or a second signal from a semiconductor chip which controls start up.

19. (previously presented): A semiconductor chip comprising:

a plurality of CPUs, each of which diagnoses itself using a first diagnosis program;

a diagnosis element which inputs a diagnosis result from said CPUs and determines whether or not each of the CPUs is normal; and

a plurality of non-CPU to-be-diagnosed elements, each of which is diagnosed by at least one of said CPUs, which is determined to be normal, using a second diagnosis program.

20. (previously presented): The semiconductor chip as claimed in claim 19, wherein said diagnosis element determines whether or not each of the CPUs is normal based on majority logic of said diagnosis results.

21. (previously presented): The semiconductor chip as claimed in claim 19, wherein said diagnosis element inputs diagnosis results from said CPUs, discriminates each of said diagnosis results into a majority group or a minority group, and determines said CPUs, whose diagnosis results is in said majority group, as normal CPUs.

22. (previously presented): The semiconductor chip as claimed in claim 19, wherein said diagnosis element includes:

majority logic elements which correspond to pins of said CPUs, each of which inputs said diagnosis results from same pins of said CPUs, respectively, and each of which discriminates each of said diagnosis results into a majority group or a minority group; and

decision elements which correspond to said CPUs and which determine said CPU whose diagnosis result is in said majority group as a normal CPU.

23. (previously presented): The semiconductor chip as claimed in claim 22, wherein said diagnosis element further includes an information output element which outputs information about whether each of said CPUs is normal or faulty.

24. (previously presented): The semiconductor chip as claimed in claim 19, further comprising a memory which records said first diagnosis program and said second diagnosis program.

25. (previously presented): The semiconductor chip as claimed in claim 19, further comprising an external input which inputs said first diagnosis program and said second diagnosis program.

26. (currently amended): The semiconductor chip as claimed in claim 19, further comprising:

a memory which records said first diagnosis program and said second diagnosis program~~;~~

an external input which inputs said first diagnosis program~~;~~ and said second diagnosis program~~;~~; and

a selector which selects said first diagnosis program and said second diagnosis program from the memory or the external input according to an instruction.

27. (previously presented): The semiconductor chip as claimed in claim 19, wherein each of said CPUs starts to diagnosis itself when it receives a trigger signal from a system control section.

28. (previously presented): The semiconductor chip as claimed in claim 19, wherein each of said CPUs starts to diagnosis itself when it receives a trigger signal from a user.

29. (previously presented): The semiconductor chip as claimed in claim 19, further comprising a selector which selects a signal to start diagnosis of said CPUs from a trigger signal from a system control section or a trigger signal from a user.

30. (previously presented): A method which is performed in a semiconductor chip including a plurality of CPUs and a plurality of non-CPU to-be-diagnosed elements, comprising:

diagnosing said CPUs each by itself;

determining whether or not each of the CPUs is normal; and

diagnosing said non-CPU to-be-diagnosed elements using a CPU which is determined to be a normal CPU.

31. (previously presented): A semiconductor chip comprising:

a plurality of CPUs, each of which diagnoses itself using a first diagnosis program;

a diagnosis element which inputs a diagnosis result from said CPUs and determines whether or not each of the CPUs is normal; and

a plurality of non-CPU to-be-diagnosed elements, each of which is diagnosed by a group of said plurality of said CPUs, which are determined to be normal, using a second diagnosis program.

32. (previously presented): A semiconductor chip comprising:

a plurality of first elements, each of which diagnoses itself using a first diagnosis program;

a diagnosis element which inputs a diagnosis result from said first elements and determines whether or not each of the first elements is normal; and

a plurality of second elements, each of which is diagnosed by at least one of said first elements, which is determined to be normal, using a second diagnosis program.

33. (previously presented): A semiconductor chip comprising:

a plurality of first elements, each of which diagnoses itself using a first diagnosis program;

a diagnosis element which inputs a diagnosis result from said first elements and determines whether or not each of the first elements is normal; and

a plurality of second elements, each of which is diagnosed by a group of said plurality of said first elements, which are determined to be normal, using a second diagnosis program.